

# REACTIVE FORMATION OF DIELECTRIC LAYERS AND PROTECTION OF ORGANIC LAYERS IN ORGANIC SEMICONDUCTOR DEVICE FABRICATION

## Abstract of the Invention

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In one embodiment, a method of manufacturing a semiconductor device comprises the steps of: a) providing an organic semiconductor layer; b) depositing a reactive species on a portion of the organic semiconductor layer; and c) reacting the reactive species with the portion of the organic layer to form a dielectric layer. In another  
10 embodiment, a method of manufacturing a semiconductor device comprises the steps of: a) providing an organic semiconductor layer; and b) exposing a surface of the organic semiconductor layer to a radiation to form a dielectric layer. In another embodiment, a method of manufacturing a transistor comprises the steps of: a) providing an organic semiconductor layer adjacent a gate electrode; b) providing an electrochemical cell  
15 wherein the gate electrode is an electrode of the electrochemical cell; and c) applying a voltage to the gate electrode to cause an electrochemical reaction to form a gate dielectric between the gate electrode and the organic semiconductor layer. In one embodiment, a method of protecting organic layers in an electronic device, comprises the steps of: a) providing a first organic layer; b) providing a barrier layer adjacent to the first organic  
20 layer, wherein the barrier layer is resistant to a solvent; and c) providing a solution or a dispersion comprising the solvent and a layer-forming material adjacent to the first organic layer.

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